



Standard Test Method for Elongation of Narrow Elastic Fabrics (Static-Load Testing)¹

This standard is issued under the fixed designation D 5278; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method determines the elongation characteristics of narrow elastic fabrics made from natural or man-made elastomers, either alone or in combination with other textile fibers, when tested with a static load testing procedure before or after laundering.

NOTE 1—For determination of similar characteristics using the constant-rate-of-extension (CRE) type tensile testing machine, refer to Test Method D 4964.

NOTE 2—For determination of similar characteristics using the constant-rate-of load (CRL) type tensile testing machine, refer to Test Method D 1775.

1.2 The use of this test method requires the selection of, or mutual agreement upon, the effective static load at which the test results will be determined.

1.3 Laundering procedures used will be those specified in Test Method AATCC 135 for 3 washing and drying cycles.

1.4 The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, the inch-pound units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the specifications.

1.5 *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 123 Terminology Relating to Textile Materials²

D 1775 Test Method for Tension and Elongation of Wide Elastic Fabrics²

D 1776 Practice for Conditioning Textiles for Testing²

D 4964 Test Method for Tension and Elongation of Elastic Fabrics (Constant-Rate-of-Extension Type Tensile Testing Machine)³

¹ This test method is under the jurisdiction of ASTM Committee D-13 on Textiles and is the direct responsibility of Subcommittee D13.59 on Fabric Test Methods, General.

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² *Annual Book of ASTM Standards*, Vol 07.01.

³ *Annual Book of ASTM Standards*, Vol 07.02.

2.2 AATCC Test Method:

135 Dimensional Changes in Automatic Home Laundering of Woven and Knit Fabrics⁴

3. Terminology

3.1 Definitions:

3.1.1 *elongation, n*—the ratio of the extension of a material to the length of the material prior to stretching. (Compare extension.)

3.1.2 *marrow elastic fabric, n*—an elastic fabric that is less than 150 mm [6 in.] in width.

3.1.3 *static load, n*—in textile testing, a mass which exerts a force by means of the mass alone without motion (synonym, dead load).

4. Summary of Test Method

4.1 Conditioned test specimens, laundered or unlaundered, are suspended and subjected to a specified loading. The static load is applied for a specified time, released, and the cycle repeated two more times. The percent elongation is read directly from the scale on the apparatus.

5. Significance and Use

5.1 This test method is considered satisfactory for acceptance testing of commercial shipments of narrow elastic fabrics because the test method is used in the trade for acceptance testing.

5.1.1 In case of a dispute arising from differences in reported test results when using this test method for acceptance testing of commercial shipments, the parties should conduct comparative tests to determine if there is a statistical bias between their laboratories. Competent statistical assistance is recommended for the investigation of bias. As a minimum, the two parties should take a group of test specimens that are as homogeneous as possible and that are from a lot of material of the type in question. The test specimens should then be randomly assigned in equal numbers to each laboratory for testing. The average results from the two laboratories should be compared using student's *t*-test for unpaired data and an acceptable probability level chosen by the two parties before testing is begun. If bias is found, either the cause must be found and corrected or the purchaser and the supplier must agree to interpret future test results in the light of the known bias.

⁴ Available from American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.